FlyBy Math™ Alignment
Performance Standards
Mathematics

ALGEBRA
Students will demonstrate an understanding of linear relations and fundamental algebraic concepts.

M7A3. Students will understand relationships between two variables.

Performance Standards	***FlyBy Math*™ Activities**
a. Plot points on a coordinate plane.	--Plot points on a schematic of a jet route, on a vertical line graph, and on a Cartesian coordinate system to describe the motion of two airplanes.
b. Represent, describe, and analyze relations from tables, graphs, and formulas.	--Represent distance, speed, and time relationship for constant speed cases using tables, bar graphs, line graphs, equations, and a Cartesian coordinate system. --Use tables, bar graphs, line graphs, equations, and a Cartesian coordinate system to draw conclusions. --Use the distance-rate-time formula to predict and analyze aircraft conflicts.
c. Describe how change in one variable affects the other variable.	--Use the distance-rate-time formula to predict and analyze aircraft conflicts. --Use graphs to compare airspace scenarios for both the same and different starting conditions and the same and different constant (fixed) rates.
d. Describe patterns in the graphs of proportional relationships, both direct (y = kx) and inverse (y = k/x).	--Represent distance, speed, and time relationship for constant speed cases using tables, bar graphs, line graphs, equations, and a Cartesian coordinate system. --Use graphs to compare airspace scenarios for both the same and different starting conditions and the same and different constant (fixed) rates.

DATA ANALYSIS AND PROBABILITY
Students will demonstrate understanding of data analysis by posing questions, collecting data, analyzing the data using measures of central tendency and variation, and using the data to answer the questions posed. Students will understand the role of probability in sampling.

M7D1. Students will pose questions, collect data, represent and analyze the data, and interpret results.

Performance Standards	***FlyBy Math*™ Activities**
f. Analyze data using appropriate graphs, including pictographs, histograms, bar graphs, line graphs, circle graphs, and line plots introduced earlier, and using box-and-whisker plots and scatter plots.	--Choose among tables, bar graphs, line graphs, a Cartesian coordinate system, and equations to model aircraft conflicts and predict outcomes.

g. Analyze and draw conclusions about data, including describing the relationship between two variables.	--Use tables, bar graphs, line graphs, equations, and a Cartesian coordinate system to draw conclusions. --Use graphs to compare airspace scenarios for both the same and different starting conditions and the same and different constant (fixed) rates.

PROCESS STANDARDS

The following process standards are essential to mastering each of the mathematics content standards. They emphasize critical dimensions of the mathematical proficiency that all students need.

M7P1. Students will solve problems (using appropriate technology).

Performance Standards	***FlyBy Math™* Activities**
b. Solve problems that arise in mathematics and in other contexts.	--Apply mathematics to solving distance, rate, and time problems for aircraft conflict scenarios.
c. Apply and adapt a variety of appropriate strategies to solve problems.	--Use tables, graphs, and equations to solve aircraft conflict problems.

M7P3. Students will communicate mathematically.

Performance Standards	***FlyBy Math™* Activities**
b. Communicate their mathematical thinking coherently and clearly to peers, teachers, and others.	--Predict outcomes and explain results of mathematical models and experiments.
d. Use the language of mathematics to express mathematical ideas precisely.	--Explain and justify solutions regarding the motion of two airplanes using the results of plotting points on a schematic of a jet route, on a vertical line graph, and on a Cartesian coordinate system. --Predict outcomes and explain results of mathematical models and experiments.

M7P4. Students will make connections among mathematical ideas and to other disciplines.

Performance Standards	***FlyBy Math™* Activities**
c. Recognize and apply mathematics in contexts outside of mathematics.	--Apply mathematics to solving distance, rate, and time problems for aircraft conflict scenarios.

M7P5. Students will represent mathematics in multiple ways.

Performance Standards	***FlyBy Math™* Activities**
a. Create and use representations to organize, record, and communicate mathematical ideas.	--Represent distance, speed, and time relationship for constant speed cases using tables, bar graphs, line graphs, equations, and a Cartesian coordinate system.
b. Select, apply, and translate among mathematical representations to solve problems.	--Choose among tables, bar graphs, line graphs, a Cartesian coordinate system, and equations to model aircraft conflicts and predict outcomes.
c. Use representations to model and interpret physical, social, and mathematical phenomena.	--Use tables, bar graphs, line graphs, a Cartesian coordinate system, and equations to model aircraft conflicts and predict outcomes.